

the navigator, and not necessarily limited to the North Atlantic area. A special investigation of the winds, currents, and air and sea temperatures experienced along the Mediterranean steamship routes is being carried out at the Seewarte, and the results are now appearing month by month on the pilot chart.

The issue for last February contains a very complete work on the handling of ships in tropical hurricanes—Atlantic, Indian and Pacific Oceans, the Arabian and China Seas. The April number gives an account of a very severe Atlantic storm, the maximum violence occurring on the rise of the barometer; a still longer article deals with water-spouts. The May chart gives the true bearing and the compass bearing at about three hundred positions round the coasts of the British Isles. The North Sea-Baltic publication is equally complete, each quarterly issue containing one general chart for the region and others for the several months of the quarter, together with an abundance of letterpress dealing with a great variety of subjects, such as the investigation of the fisheries and the physical condition of the waters of the region, the surface currents of the Kattegat and Sound, ice, and tidal streams.

With five years' experience in the preparation of the monthly North Atlantic pilot charts, our Meteorological Office has now commenced the publication of a similar series of "Monthly Meteorological Charts of the Indian Ocean North of 15° South Latitude, and Red Sea." The area covered by the map extends from 30° N. to 15° S., between the meridians of 30° and 100° E. The first number, issued in London on May 9, is for the month of May. Presumably future issues will be well in advance of the month to which they relate, so as to be in the hands of mariners navigating the Indian Ocean during the month. Generally, the chart presents the same features as the North Atlantic one. For each ocean space of 5° of latitude by 5° of longitude the frequency of winds of light, moderate, or gale force is shown for the sixteen even points of the compass, the observations upon which the results are based covering a period of fifty years. Apparently through inadvertence a pecked line intended to indicate the northern limit of the south-east trade has been omitted. Tracks of some cyclonic storms are given in red. It is left to the sailor to assume whether the date given is at the commencement or end of the tracks, there being no directing arrow heads. The set and velocity of the ocean currents are shown in blue, and in a lighter blue the variation curves for 1907. Use is made of the land spaces for supplying a variety of information by means of letterpress and inset charts.

A small chart of the whole area gives, for the month, the average distribution of barometric pressure over the sea, and the mean temperature of the air and of the water. An enlarged map of the Guardafui and Ras Hafún district shows the currents, sea temperatures, and misty weather in this dangerous locality, and suitable notes accompany the map. Over Arabia appear remarks on the various air and water elements of the Red Sea and Gulf of Aden. On the back of the sheet are given complete summaries of the elaborate storm and weather signals of the Bay of Bengal and of the Húgli River storm signals, which are far more precise than those in use in any other part of the world. A map of the southern Indian Ocean, from the equator to 40° S., and 30° to 120° E., is used for reproducing the late Dr. Meldrum's monthly tracks of cyclones between 1848 and 1885. There are notices to captains relating to the collection of meteorological observations, to the necessity for accurate determination of the errors of barometers in use, and to the compass adjustment marks at Kalpi anchorage.

Altogether the new publication gives promise of supplying a much-needed want in a simple and easily accessible form for a part of the ocean about which there has hitherto been but little information. The monthly variations in the circulation of the waters of the Arabian Sea and of the Bay of Bengal will alone well repay careful study, while a more accurate knowledge of the different winds of the region covered by the chart cannot fail to be of the greatest practical benefit to shipmasters and their officers.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The electors to the Linacre professorship of comparative anatomy will proceed to an election next month. Candidates are desired to send in their names so as to reach the registrar's office not later than Saturday, July 7. The Linacre professor is by virtue of his office a fellow of Merton College. He is entitled to receive from the college a stipend of 700*l.* a year in addition to the emoluments of a fellowship, which amount at present to 200*l.* a year.

CAMBRIDGE.—Mr. E. S. Roberts, Master of Gonville and Caius College, has been elected Vice-Chancellor for the ensuing academical year.

Mr. L. Noon, Trinity College, has been elected to a John Lucas Walker studentship in pathology.

The assessment to be paid by the colleges to the University in the present year has been fixed at 30,038*l.*, or 13*l.* per cent. on the college incomes.

The Chancellor, His Grace the Duke of Devonshire, has made a gift of 500*l.* to the special fund now being raised on behalf of the University library.

Mr. C. L. Boulenger, King's, has been nominated to the University table at the Naples Zoological Station; and Mr. K. Lucas, Trinity, to the table at the Plymouth Marine Biological Laboratory.

The special board for mathematics has made some minor alterations in the proposals for the re-modelling of the Mathematical Tripos, parts i. and ii., but it is proposed to submit unchanged to the Senate the principles of the original report.

Ten candidates have been successful in the special examination in agricultural science and the first examination for the University's diploma in agriculture.

Mr. W. A. Cunningham, Christ's, for a dissertation on "Tanganyika," and Mr. C. Shearer, Trinity, for a dissertation on "The Development of Larval Nephridia," have been approved as advanced students for the certificate of research.

Prof. Bradbury, Prof. Osler, Dr. S. West, and Prof. Rose Bradford have been appointed examiners in medicine; Dr. Rivers Pollock and Prof. Spencer, examiners in midwifery; and Dr. Kellock, Prof. Barling, Mr. Stanley Boyd, and Mr. Dunn, examiners in surgery for the ensuing academical year.

A sum of 6000*l.* from the benefaction fund, raised by the University Association, has, with the approval of the Chancellor, been contributed to the cost of the botany and medical school buildings.

The name of "Frederick James Quick, of Trinity Hall," founder of the Quick professorship of biology, has been added to the list of benefactors in the Commemoration Service.

A ROYAL COMMISSION has been appointed for the purpose of holding an inquiry into Trinity College, Dublin, and the University of Dublin. The terms of reference of the commission are as follows:—"To inquire into and report upon the present state of Trinity College, Dublin, and of the University of Dublin, including the revenues of the College and of any of its officers and their application, the method of government of the University and of the College, the system of instruction in the College and the teachers by whom it is conducted, the system of University examinations, and the provision made for post-graduate study and the encouragement of research; and also to inquire and report upon the place which Trinity College, Dublin, and the University of Dublin now hold as organs of the higher education in Ireland, and the steps proper to be taken to increase their usefulness to the country." Among the commissioners are Sir Edward Fry (chairman), Sir A. W. Rücker, F.R.S., and Prof. D. J. Coffey.

ACCORDING to the *Reichsanzeiger*, the number of students who took the "Doktor-Ingenieur" degree of the technical Hochschulen at Berlin, Hanover, and Aachen during the last winter semester was seven in Berlin, five in Hanover, and four in Aachen, while the number who took this degree during the two semesters from March, 1905, to

March, 1906, at the Dresden Technische Hochschule was seventeen; of these thirty-three we find that eight passed the *viva voce* examination with distinction, whilst the ages of the candidates varied from twenty-three to thirty-nine years. As a reason for this small number of the students who eventually take the degree, it is said that the great majority of the students, after having passed through their eight semesters of stiff study and obtained the coveted diploma, qualifying them to style themselves "Dipl. Ing.," have frequently neither the desire nor the means for the extra semester's study and research necessary for the doctor's degree.

THERE is no diminution in the generosity shown by American citizens towards higher education. *Science* announces that Columbia University has received 1000*l.* for a mathematical prize, given by Mrs. Louise T. Hoyt. Mr. Edward S. Harkness has given 540*l.* to the morphological museum at the College of Physicians and Surgeons, and Mr. Archer M. Huntington 200*l.* to support a lectureship in geography. In April, 1905, Mr. Andrew Carnegie offered Morningside College, Sioux City, Iowa, 10,000*l.* on condition that they raised 30,000*l.* On April 3, 1906, his conditions for the gift were satisfied, and Mr. Carnegie's cheque has been received. Mr. Carnegie has also given the sum of 10,000*l.* to Drury College, at Springfield, Missouri, on condition that the college increases its resources by the sum of 40,000*l.* About one-third of this sum has been raised since January 1. Mr. R. Y. Cummings has given 4000*l.* to the Field Museum of Natural History to defray the expenses of an ethnological study of the native tribes of the Philippine Islands.

ALBION COLLEGE is now building a new biological laboratory, which is expected, we learn from *Science*, to be completed in time for the opening of the college year in September. Mr. Andrew Carnegie has promised 4000*l.* to the endowment fund of the college on condition that 16,000*l.* additional is raised for the purpose. Mr. Carnegie has also given Kenyon College 5000*l.* to aid poor students. A new scholarship of 1000*l.* has been given to Barnard College, Columbia University, by Mrs. George W. Colford in memory of her brother. By the will of Roland Hayward, of Milton, Mass., the museum of comparative zoology of Harvard University will receive the testator's collection of Coleoptera.

A CLAUSE in the Education Bill before Parliament will, if it eventually become part of the Act, abolish the Teachers' Register. There is a strong feeling among teachers in secondary schools and others that such a course would be very prejudicial to the progress of secondary and higher education, inasmuch as it would discourage the movement to secure adequate training for secondary-school teachers. A meeting of the heads of training colleges for secondary-school masters and mistresses in all parts of the country was held at Bedford College, London, on May 26, to consider the proposals of the Government, and after discussion numerous resolutions were adopted unanimously. These resolutions declared that, as a result of the proposal, public confidence in the stability of the Board of Education has been shaken seriously; that a part of the present register fulfils a purpose that is useful and not otherwise provided for; that grants and other administrative aids to the training of secondary-school teachers, as promised by the Board of Education, do not form a substitute for a register. The recognition of a profession, one resolution insists, with powers over entrance to its ranks, is an essential element in creating a respected and permanent profession; and another lays it down that in view of the difference of conditions at the various centres of training and of the necessity for experiments in the training of teachers, the Board of Education should give as much liberty as possible in the regulations under which the preparation for diplomas is conducted.

THE current number of the *University Review* contains a vigorous article by Mr. H. P. Biggar on the establishment of a graduate school at Oxford. One of the chief aims of a university should be, the article insists, the extension of the bounds of knowledge in each department of learning by masters who are capable of making fresh discoveries therein. This object is constantly before the

minds of the authorities of German and French universities. In both these countries the graduation of students is dependent upon their success in prosecuting research, and from France and Germany instruction in research has spread to the United States. Since 1876, Princeton, Columbia, Chicago, Cornell, and other American universities have found themselves bound to establish graduate schools where training may be obtained in research, and from the United States post-graduate studies have spread to Canada. With us, however, graduate studies are practically unknown. At Oxford, for instance, which Mr. Biggar takes as an example, because it is there alone that Rhodes scholars may study, the University ceases to enforce any test of proficiency beyond the degree of Bachelor of Arts. The B.A. has but to continue to pay certain fees to his college for about three and a half years after taking his degree, when he may come up, pay some 20*l.*, receive the degree of Master of Arts, and become a member of Convocation. What is wanted, Mr. Biggar maintains, is to establish at Oxford a proper graduate school, that is merely the reinforcement of a thesis, either for the M.A. or for the doctor's degree. The important part is that the increase of knowledge should be looked upon as one of the main ends to be kept in view. Then, perhaps, the Rhodes scholars will discontinue to experience the disillusionment which awaits many of them, who come hoping to find themselves among the makers of new knowledge! and participating in the glorious work.

THE distinguished representatives of the University of Paris and the Collège de France, together with guests from nine other French universities, arrived in London on June 4, and have during the week been entertained by the University of London and the Modern Language Association. The visitors were met at Victoria Station by Sir Edward Busk, Vice-Chancellor of the University of London; Sir Arthur Rücker, principal of the University; and many members of different faculties of the University and of the Modern Language Association. In the evening of June 4 the French guests were entertained at an informal dinner. Sir Walter Palmer, chairman of the London University organisation committee, in proposing in French the toast of "Our Guests," said that the visit is a unique fact in the annals of university life, which will long remain imprinted on our hearts as a new phase in the scientific and literary development of the two nations represented. What could be of happier augury than so distinguished an assembly of men of letters and of science leaving their country and paying a visit to their colleagues in order to draw closer still the bonds existing between the arts and the sciences of the two countries? M. Bayet, director of higher education at the Ministry of Public Instruction, responding in French, remarked that if there is a domain in which the *entente cordiale* has its place it is the domain of letters, science, and art. It has long had its place there, for if we reascend the current of the centuries we find that this *entente cordiale* has existed almost always between England and France. We are creditors and debtors of each other. Frenchmen, he said, salute the profound influence which England has exerted upon them in the domain of letters, science, and art. They know the English writers, poets, and philosophers, they love them, they have drawn inspiration from them, and in their hearts they associate themselves with the cult of great writers and thinkers. M. Lippmann, who responded for the faculty of science of the University of Paris, spoke in English, and said science is not bounded by the Channel nor has it a local habitation. There is but one geometry throughout the world. The laws of nature reach beyond the stars. For that reason the guests feel at home in any place among the brotherhood of scientific men. He continued, it is a happy dispensation that a university should have been founded within the precincts of this huge city. London is gigantic in size, wealth, and might; its shipping is unrivalled, its commercial activity unexampled; but the greater the pressure of business, the heavier the load of accumulated wealth, the more needful it is to augment the power of the priceless element which is the soul of a university, the more so as the experimental work done in laboratories and in experimental research of any kind is the prime source of industrial progress, as well as an antidote to

fortune.—On Tuesday the visitors were received at the Foreign Office in order that Lord Fitzmaurice and Mr. Lough, M.P., might welcome them officially on behalf of the Government. At the conclusion of the reception they were driven to the University of London, where luncheon was served. Addresses were afterwards delivered by the Vice-Chancellor (Sir Edward Busk), M. Liard, Sir Arthur Rücker, and Prof. M. E. Sadler, and a visit was made to the new physical and chemical laboratories of the Royal College of Science. In the evening several receptions were held in honour of the guests.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, May 9.—Mr. Aubrey Stuehan, F.R.S., vice-president, in the chair.—The eruption of Vesuvius in April, 1906: Prof. Giuseppe de Lorenzo. After the great eruption of 1872 Vesuvius lapsed into repose, marked by merely solfataric phenomena, for three years. Strombolian activity followed, varied by lateral outpourings of lava in 1885, 1889, 1891, 1895, &c., and by outbursts from the principal crater in 1900 and 1904. Fissuring of the cone and slight outpourings of lava began in May, 1905, and continued until April 4, 1906, when the first great outburst from the principal crater occurred, accompanied by the formation of deeper and larger fissures in the southern wall of the cone, from which a great mass of fluid and scoriaceous lava was erupted. After a pause the maximum outburst took place during the night of April 7 and 8, and blew 3000 feet into the air scoriae and lapilli of lava, as well as fragments derived from the wreckage of the cone. The south-westerly wind carried this ash to Ottajano and San Giuseppe, which were buried under 3 feet of it, and even swept it on to the Adriatic and Montenegro. At this time the lava which reached Torre Annunziata was erupted. The decrescent phase began on April 8, but the collapse of the cone of the principal crater was accompanied by the ejection of steam and dust to a height of from 22,000 feet to 26,000 feet. On April 9 and 10 the wind was north-easterly, and the dust was carried over Torre del Greco and as far as Spain; but on April 11 the cloud was again impelled northward. The ash in the earlier eruptions was dark in colour, and made of materials derived directly from the usual type of leucotephritic magma; but later it became greyer, and mixed with weathered clastic material from the cone. The great cone had an almost horizontal rim on April 13, very little higher than Monte Somma, and with a crater which possibly exceeds 1000 feet in diameter; this cone was almost snow-white from the deposit of sublimes. Many deaths were due to asphyxia, but the collapse of roofs weighted with dust was a source of much danger, as was the case at Pompeii in A.D. 79. The lava-streams surrounded trees, many of which still stood in the hot lava with their leaves and blossoms apparently uninjured. The sea-level during April 7 and 8 was lowered 6 inches near Pozzuoli and as much as 12 inches near Portici, and had not returned to its previous level on April 18. The maximum activity coincided almost exactly with the full moon, and at the time the volcanoes of the Phlegrean Fields and of the islands remained in their normal condition. The author believes that this eruption of Vesuvius is greater than any of those recorded in history, with two exceptions—those of A.D. 79 and of A.D. 1631.—The Ordovician rocks of western Caermarthenshire: D. C. Evans. The ground dealt with is practically identical with that examined by the late Thomas Roberts, whose notes were published in 1893. It extends from the River Cywyn on the east to the Tave on the west, and from the base of the Old Red Sandstone on the south to the top of the Dicranograptus-Shales on the north.

Zoological Society, May 15.—Dr. J. Rose Bradford, F.R.S., vice-president, in the chair.—Descriptions of the two species of water-mites (Hydrachnidae) collected by Mr. W. A. Cunningham in Lake Nyasa during the third Tanganyika expedition, 1904-5: J. N. Halbert.—A collection of mammals made by Mr. W. Stalker in the northern territory of South Australia, and presented to the National

Museum by Sir William Ingram, Bart., and the Hon. John Forrest: O. Thomas. The collection included sixteen species, of which the two following were of special interest:—*Mus forresti*, sp.n. Size, medium. Colour, drab-grey above, white below. Teeth with their laminæ peculiarly twisted, the first molars with large cingular ledges. Head and body, 104 mm.; tail, 72 mm.; hind foot, 19 mm. Type, B.M. No. 6.3.9.39. *Phascogale ingrami*, sp.n. Size, minute; the teeth and feet smaller than in any known Australian marsupial. Head peculiarly flattened. Head and body, 80 mm.; tail, 60 mm.; hind foot, 10 mm. Type, B.M. No. 6.3.9.77.—The skull of a young ribbon-fish (Regalecus): Prof. W. B. Benham and W. J. Dunbar.—Descriptions of two species—one of them new—of hair-worms of the family Gordiidae: Dr. von Linstow. The specimens were obtained in Korea by Mr. Malcolm Anderson, who was making collections of the fauna of eastern Asia for the Duke of Bedford.—Descriptions of a new lizard, a new snake, and a new toad collected in Uganda by Mr. E. Degen: G. A. Boulenger.—The gestation and parturition of certain monkeys that had bred in the society's menagerie in the spring of the present year: R. I. Pocock.

Faraday Society, May 15.—Dr. F. Mollwo Perkin, treasurer, in the chair.—Behaviour of platinised electrodes: H. D. Law. The author desired to find an electrode on which the reduction of the aromatic aldehydes and similar easily reducible compounds could not be effected. Platinised platinum, as being the metal from which hydrogen is liberated at the lowest potential, was tried as the cathode in an acidified alcoholic solution of benzaldehyde. At first energetic reduction took place; the activity of this, however, diminished in successive experiments, and was extremely small after twelve hours' polarisation.—The electrolysis of fused zinc chloride in cells heated externally: Julius L. F. Vogel. The dehydration of zinc chloride by evaporating under reduced pressure, and the electrolysis of the salt in a fused state in externally heated cells were investigated by Dr. O. J. Steinhart and the author jointly on behalf of the Smelting Corporation, Ltd. Further investigations were made after the United Alkali Company had joined the Smelting Corporation in testing the process, and details are given in the paper of the work as carried out under the joint supervision of the author's firm and the chemical staff of the United Alkali Company. The author describes how the process was carried successfully to a stage when continuous electrolysis was carried on for eleven days and nights, and three cwt. of pure zinc was produced. On the failure of the Smelting Corporation the work was suspended, and finally abandoned, although further elaborate investigations were undertaken by the United Alkali Company utilising cells heated internally by the current.

Royal Microscopical Society, May 16.—Dr. D. H. Scott, F.R.S., president, in the chair.—Some observations recently made on the parasites of malaria and the phagocytic action of the polymorphonuclear leucocytes: Dr. Bernstein. The subject was illustrated by drawings showing the results of observations made during the examination of blood taken from a patient suffering from malarial fever. The observations were made at intervals of a few minutes during a period of five hours. A crescent form of the parasite was seen to become engulfed by a leucocyte, in which it was soon surrounded by vacuoles and was ultimately destroyed, only the pigment granules remaining; other leucocytes afterwards approached and absorbed some of the granules. The blood film was stained, and the preparation, showing the pigment granules in the polymorphonuclear leucocytes, was exhibited under a microscope at the meeting.

Chemical Society, May 17.—Prof. R. Meldola, F.R.S., president, in the chair.—The relation between absorption spectra and chemical constitution, part vi., the phenylhydrazones of simple aldehydes and ketones: E. C. C. Baly and W. B. Tuck. A spectroscopic investigation of the phenylhydrazones of formaldehyde, acetaldehyde, propylaldehyde, acetone, and diethylketone shows that these exist in two forms, an unstable true hydrazone and a stable azo-form. The absorption spectra of the hydrazones of the